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To What Extent Does Posted Nutrition Information in Fast Food Restaurants Influence Consumer Food Choices?

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TO WHAT EXTENT DOES POSTED NUTRITION INFORMATION IN FAST FOOD
RESTAURANTS INFLUENCE CONSUMER FOOD CHOICES?

By

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Honors Capstone Project

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ABSTRACT

A study of a sample ($n=59$) of college students at a small, liberal arts university investigated the efficacy of the Patient Protection and Affordable Care Act of 2010's Section 4205, which necessitated calorie labeling on menus of all restaurants, including fast food establishments, with 20 or more locations. The control group ($n=31$) of students was presented with popular fast food menu items as they currently appear on the menu, without caloric content or a recommended calorie intake statement. The experimental group ($n=28$) was presented with the same menu with caloric content and a statement regarding suggested daily intake. Each menu consisted of 26 items presented in color. All survey participants were asked to select items they would typically order for a meal. Participants also completed a survey concerning exercise and types and frequency of fast food restaurants they patronize.

In number of calories ordered, no significant data resulted, indicating that no difference in the two groups' ordering habits existed. This suggested that calorie labeling might not have an impact on consumers' food selection. However, a trend did appear of males ordering more calories when shown calorie information and females ordering fewer calories when shown caloric information. This research opens avenues for further studies on the psychological and health-related implications of nutrition labeling in restaurants, as well as the differences in responses for males and females.

Keywords: Fast food, calorie, menu labeling, Patient Protection and Affordable Care Act of 2010, nutrition, college

INTRODUCTION

In March 2010 President Barack Obama signed the Patient Protection and Affordable Care Act, or health care reform law, requiring that restaurants identify caloric content of all foods in both the written and posted menus. With the obesity rate in America on the rise, the goal of this section of the Act is to “Help people recognize and make healthy food and beverage choices,” because “people are better able to make healthy decisions when provided with the information and motivation to identify and make healthy choices” (National Prevention Council, 2011, p. 35).

A variety of causes can be attributed to the obesity crisis Americans now face, but one major issue is that of the fast food industry combined with poor consumer decisions. By requiring the posting of nutrition information on menu boards, the United States government hopes to aid in the fight against obesity by affecting consumers’ decisions in fast food franchises and restaurant chains. The purpose of this study is to investigate if this Act will be of consequence; that is, will college-age consumers alter their fast food menu ordering habits in response to calorie labeling? Furthermore, will consumers make healthier decisions when provided with this information?

REVIEW OF LITERATURE

Calorie-Labeling Legislation

In 1990 the United States government approved the Nutrition Labeling and Education Act (NLEA), which required grocery stores to label almost all packaged foods with *Nutrition Facts*. Its implementation in 1994 led to improved consumer comprehension of nutritional information, according to a Duke University study (as cited in Morrison, Mancino, & Variyam, 2011, p. 12).

While the NLEA was important for grocery stores, something needed to be done for the large percent of Americans that eat away from home on a regular basis. New York City was the first to recognize this need to provide information to otherwise ill-informed American fast food frequenters. In 2008, the city implemented the first calorie labeling law, in which restaurants with 15 locations or more were required to post the calorie information of all items on the menu boards in the restaurants. Since then, California, Oregon, Maine, Massachusetts, and Tennessee have also instigated calorie-labeling laws similar to New York City's (National Conference of State Legislatures, 2013).

On March 23 of 2010, President Barack Obama signed the Patient Protection and Affordable Care Act, which enforced a new standard for menu labeling nationwide. The Food and Drug Administration released its set of rules for the labeling on April 1, 2011. This health care legislation, which was originally to be put into effect on an unannounced date in 2012, will require that any establishment that serves food and has

20 or more locations doing business in the same name and which serves the same items across all franchises must post the following:

...in clear and conspicuous manner—in a nutrient content disclosure statement adjacent to the name of the standard menu item, so as to be clearly associated with the standard menu item, on the menu listing the item for sale, the number of calories contained in the standard menu item, as usually prepared and offered for sale; and a succinct statement concerning suggested daily caloric intake, as specified by the Secretary by regulation and posted prominently on the menu and designed to enable the public to understand, in the context of a total daily diet, the significance of the caloric information that is provided on the menu.

Patient Protection and Affordable Care Act (2010)

The rules exempt alcoholic beverages and food offered through theaters, amusement parks, hotels, bowling alleys, airplanes, and carnivals. They apply only to establishments that use at least half of their floor for food sale, as well as to convenience stores and supermarkets that sell items for immediate consumption.

Though the Act is not yet in effect, some restaurants have already updated menus and drive-thru boards in anticipation of future legislation. Panera Bread was the first chain restaurant to voluntarily post calorie information on menus in 2010, and in September 2012, McDonald's implemented its own calorie labeling on all menus, as observed in franchises of these restaurants.

Obesity in America

America's weight problem is no secret, but what is the foundation of this problem? In the past century, Americans' portion sizes have grown. A McDonald's soda in 1960 was 7 fluid ounces, but now can be between 12 and 42 fluid ounces (Young, 2005, p. 9). The problem with these portion sizes is that humans typically eat whatever is placed in front of them, regardless of the caloric content. Rolls, Morris, and Roe (2002) found that participants ate increasing amounts as their portion sizes increased to four different calorie levels, despite the fact that they reported consistent hunger levels.

With the overall increase in portion size, the size of the average body has also expanded. Larimore, Flynt, and Halliday (2005) reported "on average we eat almost three hundred calories more per day and burn about three hundred calories less a day than we did twenty years ago" (p. 27). Those additional calories are stored as fat in the body since they are not used for activity. A 2001 University of Minnesota study confirmed that indeed, eating fast food increases caloric intake. The study found that among 5000 adolescent students,

...a boy who never ate at a fast food restaurant during the school week averaged a daily calorie count of 1952; one who ate fast food one to two times a week (as did more than half of all the children in the study) consumed an average of 2192 calories a day; while those who ate fast food three times or more a week (one fifth of the studied) consumed an amazing 2752 calories a day. (as cited in Critser, 2003, p. 115)

One major problem with weight gain is the decrease in sensitivity to hunger cues. The more fast food one consumes, the less that person may feel that he is actually consuming. This is because the hormones that help to control eating are harder to detect as fat increases (Larimore, et al., 2005, p. 30). The insensitivity is only amplified when patrons eat fast food, because it is exactly that—fast. But it takes 25 to 30 minutes to feel full (p. 31). “More people are becoming fat for the simple reason that we have created an environment that makes this inevitable” (Pool, 2001, p. 11). Our bodies historically are created to thrive in a hunter-gatherer environment, storing just enough fat to make it through times when food may be scarce. Today, however, food is rarely scarce, and we exert little physical effort in gathering our own food.

Obesity is a serious medical condition, as obesity-related illness kills hundreds of thousands of Americans per year (Spurlock, 2005; Mahan, Escott-Stump, & Raymond, 2012). The five top obesity-related health issues are type two diabetes, coronary heart disease and stroke, hypertension, arthritis, and cancer (Levi, Segal, St. Laurent, Lang, & Rayburn, 2012). Furthermore, “In the United States, it has been estimated that overweight and obesity contribute to 14% to 20% of all cancer-related mortality” (American Cancer Society, 2013, p. 45).

Obesity Among the Collegiate Population

Though the college population is not always targeted as a population of concern for weight loss, it is a demographic prone to overweight and obesity. In fact, in 2005, three out of ten college students were overweight or obese (Sparling, 2007, p.1). But it

is not weight alone pointing to the problem of collegiate health; it is nutrient intake and exercise as well.

Behaviorally, 9 of 10 students eat fewer than five servings of fruits and vegetables per day, and nearly 6 of 10 students participate fewer than 3 days per week in vigorous-intensity (20 minutes or more) or moderate-intensity (30 minutes or more) physical activity. (Sparling, p. 1)

Top reasons for college students to consume fast food are for its convenience, low cost, taste, and because friends or family are doing it (Morse & Driskell, 2009). Males tend to consume more fast food per week than females, and the same is true in the college population. Heidal et al. (2012) reported male college students spent \$47 more than females on fast food per month and consumed 9600 calories per month more than females (pp. 944-945). Weight gain during college is not uncommon. According to Mihalopoulos, Auinger, and Klein (as cited in Monteiro, Jeremic, & Budden, 2010), freshmen students have been found to experience weight gain upon entrance into college life, and if students were to continue to gain weight at the same rate, they could eventually become obese in later adult life.

The Role of Fast Food in Obesity

Fast food restaurants cannot be totally at fault for the downfall of America's health, but in many cases, their actions are disapproved of. Shaw (1997) outlined many of the schemes fast food companies have devised in order to appease critics while still enticing customers. "With public attention focused on lowering the fat in hamburger meat and eating the new health fad, chicken, as an alternative to beef, some *deliberate*

addition of fat by the food manufacturers is necessary for customer satisfaction” (p. 141). Fast food restaurants do what is in the business’s best interest, but this strategy is not always in the customers’ health interest. Oftentimes, this means that the food that will sell the best is the food that is loaded with calories, fats, sugars, and sodium.

“In 1970, there were around 70,000 fast-food establishments in the country. Fast food is more accessible now than ever before” (Spurlock, 2005, p. 19). In 2008, 250,000 fast food restaurants existed in the United States (Rubin & Bulwer, 2008, p. 46). “The American Journal of Preventive Medicine published a study in 2004 showing that the percentage of fast-food calories in the American diet has increased from 3 percent to 12 percent over the last 20 years” (as cited in Spurlock, p.15).

Since fast food has become a staple in so many American’s diets, it is important that consumers can understand the number of calories ingested. Even trained dietitians have trouble distinguishing by sight alone how many calories certain restaurant items contain, according to a study for the Center for Science in the Public Interest (Backstrand, Wootan, Young, & Hurley, 1997). In this study, 200 dietitians were shown five plates of food served in restaurants and were unable to accurately estimate the calories in the Caesar salad with chicken, lasagna, tuna salad sandwich, porterhouse steak platter, and hamburger with onion rings. Some dietitians even underestimated the caloric content of the food by half.

Research in Calorie Labeling Already Completed

Results from research on the effectiveness of calorie labeling are mixed. A projective study by Burton and Creyer (2004) examined consumer response to

unfavorable nutrient levels, as compared to favorable and control nutrient levels. The unfavorable nutrient levels were represented by items containing 33 grams of total fat, 10 grams of saturated fat, 1600 milligrams of sodium, and 190 milligrams of cholesterol. The researchers found that when consumers are “exposed to these unfavorable nutrient levels, disease risk perceptions increase, and their attitudes toward the product and purchase intentions decrease, relative to the control condition in which no nutrition information is presented” (p. 142). Another study by Pulos and Leng (2010) showed promise for the success of the label laws. The study, which examined six full-service restaurants, in which patrons sit down and read a menu, in Pierce County, Washington, found that after labeling was added to menus, the average entrée purchased contained 15 fewer calories, as well as 45 fewer milligrams of sodium, and 1.5 fewer fat grams. Pulos and Leng found that 71% of customers noticed the nutrition information, and 20.4% ordered a lower-calorie item as a result. Tandon, Wright, Zhou, Rogers, and Christakis (2010) performed a clinical trial in which parents were presented with a McDonald’s menu listing calorie content of the food. A control group viewed menus without calorie content. All parents were asked to order meals for themselves and their children. The researchers found that the parents ordered an average of 102 calories fewer than those presented with menus lacking calorie content information.

Bahnick, House, Krouse, Morgan, and Thompson (2011) found that among college students presented with calorie-labeled menus and non-calorie-labeled menus, those with calorie information selected 209.71 calories fewer than those without (p. 43). Gender may be a factor to consider in calorie labeling, as the results of this study

were only significant for the male population. Gerend (2009) found a similar pattern in a study of college students; however, in this case, females chose lower calorie meals and items when calorie information was included on a menu. Males' habits did not change in response to the provision of calorie listings.

Roberto, Larsen, Agnew, Baik, and Brownell (2010) conducted another study to find a positive correlation between calorie information and consumer. The researchers found that of participants in three groups, two with calorie information and one without, those provided with calorie information consumed 14% fewer calories than the group without. One of the groups provided with caloric information also viewed a notice stating the average recommended calorie intake of 2000 calories per day. This group consumed 250 fewer calories per day than the group that viewed only the calorie information without the recommended caloric intake notice (pp. 312, 316).

A study by Johnson (2010) revealed that using traffic lights to mimic the Traffic Light Diet improved some consumer choices. The researcher also used a group with standard nutrition labeling, and one with neither traffic light signs nor labeling. Using green, yellow, and red signs for foods that can be eaten as desired, moderately, and sparingly respectively, the study found that all participants ate more of the green-light foods. However, this study found that the only participants to decrease caloric intake were lean females; no lean males or overweight or obese males or females changed their intake as compared to the groups without traffic light symbols or standard nutrition information.

A study conducted by Bollinger, Leslie, & Sorensen (2011) of Stanford University confirmed that calorie postings in Starbucks led to a decrease in caloric intake in customers by 6%. A majority of this decrease, however, was a result of food choices, as beverage choices demonstrated nearly no change. Further confirming positive results was the research of Dumanovsky, Huan, Bassett, & Silver (2010) on the effectiveness of calorie labeling in New York City, which found that “72% of customers at the 15 fast food chains in our study reported seeing calorie information, and 27% of these customers said they had considered that information when making their food choices” (p. 2523).

While many researchers have found a positive correlation between nutrition information and decrease in caloric intake, others provide little to no result. A study by Elbel, Gyamfi, and Kersh (2011) found that 57% of teens in four main fast food restaurants in New York City noticed calorie information. Only 9% used the information in making their food decisions. Parents ordering for their children only reduced the calories ordered on average by 25, which is not enough to make a significant impact.

Another study by Elbel, Kersh, Brescoll, and Dixon (2009) found that while 54% of customers (n=1156) reported seeing the posted nutrition information in four fast-food chains in low-income areas of New York City, only 27.7% claimed that it affected their decision. Despite the customers’ claims, no major difference in calories purchased was seen in this group. Furthermore, no significant difference in calories purchased was seen when compared to the same four restaurants in Newark, New Jersey, where no calories had been posted. Platkin (2009) conducted a survey in which participants

($n=62$) viewed a normal Burger King menu, one with calorie information, or one with both calorie information and exercise equivalents for expending the calories. The study yielded virtually no results among the variety of menus.

Panera Bread Company is one franchise that has implemented calorie labeling on its menus nationwide. This company has strived to remove surprisingly high-calorie items in order to benefit its health-conscious customers. Conniff (2011) stated, "Consumers did not appear to change the way they ordered. This company realized that some consumers find the information important and love having all of this nutritional data. But a lot of consumers simply don't care" (para. 4).

Implications of Calorie Labeling

Considering such mixed data from very few research endeavors, it may be important to conduct further research on the new regulation that the United States government projects to be beneficial (Burton & Creyer, 2004; Elbel et al., 2009; Roberto et al., 2010). With a large amount of fast food restaurants and given the vast number of individuals selecting fast food for meals, it is pertinent that some change is brought about, potentially a change that could begin with the Patient Protection and Affordable Care Act of 2010. The purpose of this study is to investigate if this Act will be of consequence; that is, will consumers alter their fast food menu ordering habits in response to calorie labeling?

METHODS

This quantitative study recruited a sample of undergraduate students of a small, liberal arts university. The 62 student research subjects were drafted from psychology and statistics courses at the university. Participation was anonymous and voluntary, with the incentive of course extra credit offered by the course professors. The study occurred at 6:00 p.m. on an evening in March 2012. The research followed a true experimental method and the students were randomly assigned into control and experimental groups and given coded materials. Those 31 students in the control group were presented with popular fast food menu items as they currently appear on the menu, without caloric content or a recommended calorie intake statement (See Appendix A). The experimental group of 31 students was presented with the same menu, but including caloric content and a statement regarding suggested daily intake (See Appendix B).

All survey participants were instructed to select items they would typically order for a meal by placing checkmarks in boxes next to selected menu items. Participants could select as many options as desired. Following menu selection, participants were instructed to proceed onto the survey portion of the study and not turn back to the menu page. Participants then completed a survey in which they self-reported on questions concerning types and frequency of fast food restaurants they patronize, as well as identifying age and gender (See Appendix C).

Menu items were selected from a group of restaurants located in near proximity to the college campus. From those restaurants, selected high-calorie entrées, sides, and

drinks were included on the menu. Each menu consisted of 26 items presented in color.

All statistical analyses were conducted using IBM SPSS Statistics. Data was analyzed for significance using ANOVA and independent samples *t*-tests.

RESULTS

The purpose of this study was to investigate if the Patient Protection and Affordable Care Act of 2010 would be of consequence; that is, would college-age consumers alter their fast food menu ordering habits in response to calorie labeling in order to identify if consumers would make healthier decisions when provided with this information. The alternative hypothesis was that fewer calories would be ordered on average in the experimental group than in the control group. The average number of calories ordered by participants in this study was 1949.94 per meal, and average participant age was 19.5. See Table 1 for further demographic information and descriptive statistics.

A significant skew existed in the data set. Three survey responses (4.8%) were removed as statistical outliers. In addition to being statistical outliers with z-scores higher than 3 (3.77, 3.36, 3.22), these three participants chose unrealistic amounts of calories per one meal (9510, 7828, 7598) and chose 10, 12, and 15 items per one meal. A disregard for following directions seemed to be the case with the three outliers. Removing the outliers did not change the results of the study.

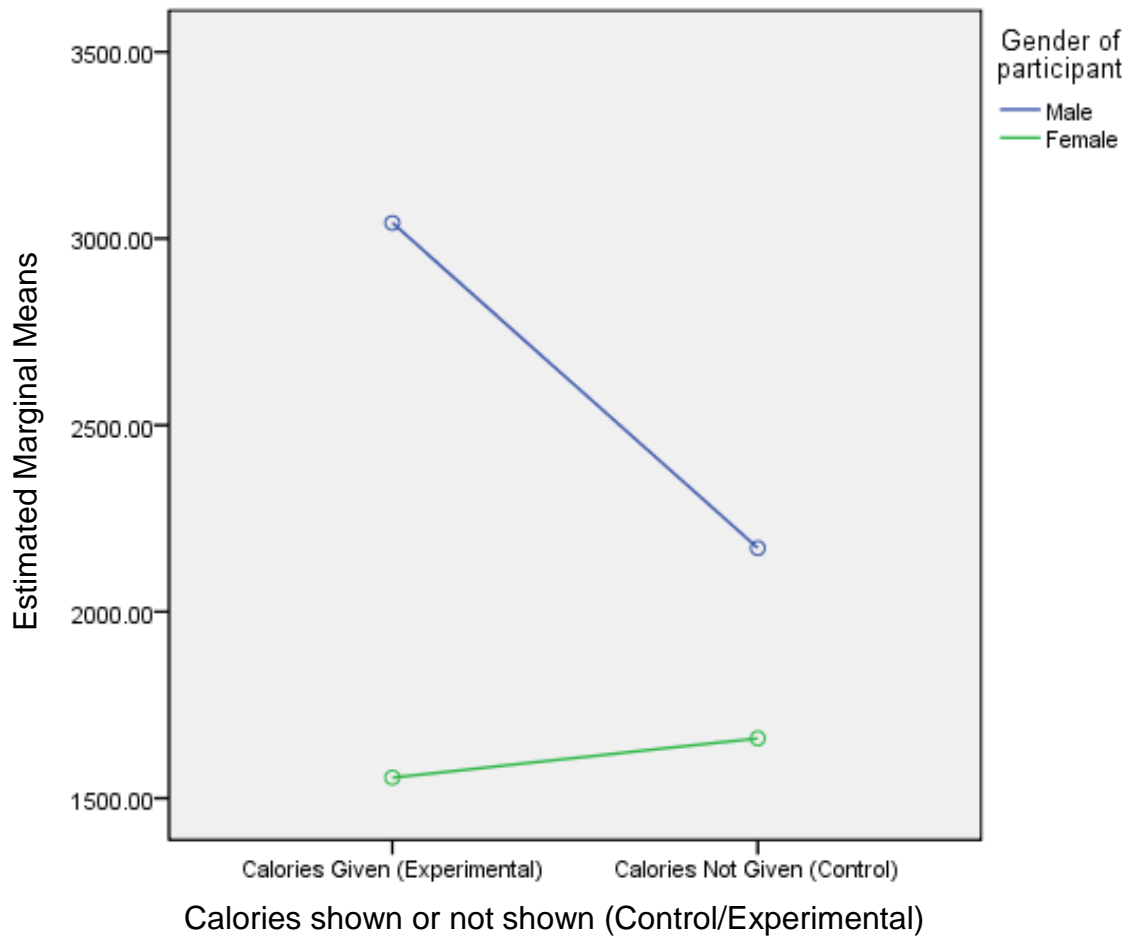
Table 1
Descriptive Statistics

	Minimum	Maximum	<i>M</i>	<i>SD</i>
Number of Calories Ordered	390.00	5830.00	1949.94	1366.13
Age of Participant	18.00	27.00	19.56	1.49
Times per month visiting fast food restaurant	.50	25.00	6.12	4.95
Time spent exercising per day (minutes)	.00	240.00	66.95	43.95
Days exercised per week	.00	7.00	3.57	1.89

Note. $n=59$

An ANOVA test examining the intersection of gender and condition of calories present or absent revealed a trend in which males in the experimental group ($M = 3497.64$, $SD = 2306.05$) ordered more calories when presented with calorie information, and females ($M = 2233.09$, $SD = 2487.91$) ordered fewer calories when presented with caloric information (See Figure 1). This trend was not significant, $F(1, 58) = .58$, $p > .05$, partial $\eta^2 = .01$.

Figure 1: Estimated Marginal Means of Number of calories ordered



The alternative hypothesis of the study was that calorie labeling being present would result in fewer calories selected. A trend existed in this study of students who were given caloric information ($M = 2033.39$, $SD = 1649.77$) ordered more calories on average than those students presented with menus not showing calories ($M = 1874.56$, $SD = 1070.65$). However, an independent samples t -test revealed that this was not statistically significant $t(57) = .434$, $p > .05$, $d = .06$. Therefore, the null hypothesis was not rejected.

An independent samples *t*-test revealed significance with males ($M = 2527.12$, $SD = 1474.33$) ordering more calories on average than females ($M = 1606.75$, $SD = 1189.23$), $t(57) = 2.48$, $p < .05$, $d = .32$.

A positive correlation existed between number of calories ordered and times visiting a fast food restaurant per month $r(59) = .27$, $p < 0.5$. Another positive correlation existed between times visiting a fast food restaurant per month and number of days exercised per week $r(59) = .31$, $p < 0.5$, as well as between number of times visiting a fast food restaurant per month and amount of minutes exercised per day $r(59) = .37$, $p < 0.5$. The purpose of this study was to identify if students would order fewer calories on average when presented with caloric information. The null hypothesis that students would not order fewer calories in response to calorie labeling was not rejected.

DISCUSSION

The alternative hypothesis of this study was that calorie labeling, which has been mandated by the Patient Protection and Affordable Care Act of 2010, would lead to fewer calories ordered by consumers on average, with the null hypothesis being that no effect would be observed. Though results were not significant in this study in terms of the number of calories ordered, a trend emerged; when shown calories on a menu, subjects ordered more calories than when not shown calories. The results' being not significant makes it impossible to reject the null hypothesis of the study. That the results were not significant also suggests that calorie labeling may have no effect on food choice in fast food restaurants.

Significance noted in this study with males ordering more calories than females on average would be consistent with males' caloric needs being higher than females'. The positive correlation between number of calories ordered within the study and number of times self-reported to visit a fast food restaurant in a month suggests that frequent fast food visitation leads to higher caloric choice in fast food restaurants.

A trend toward males ordering more calories and females ordering fewer calories when presented with nutrition information existed. This trend follows the findings of Morse and Driskell (2009), who, in a study on fast food habits of college-age persons, found that "A significantly higher ($p < .0001$) percentage of women than men strongly agreed with the statement that 'the nutrition content of food is important to me'" (para. 1). Gerend (2009) also found that females chose lower calorie meals and items in response to nutrition labeling, whereas males demonstrated no response.

Contrary to the current study's findings, however, are the results of Bahnick, House, Krouse, Morgan, and Thompson (2011), who found that only males ordered fewer calories in response to calorie-labeled menus. This study adds to the mixed results of work already completed.

Limitations

A limitation to this study was a small sample size. Additionally, the menus consisted of more of the high-calorie options and fewer low-calorie options currently offered in fast food restaurants, which may explain why the average number of calories selected was 1949.94. This work originally began with research on high-calorie options in fast food restaurants. When the study was changed to a survey method, the previously researched high-calorie items were implemented into the control and experimental menus. More realistic restaurant menu options may have yielded different outcomes.

Another limitation is that this study did not account for the price of the menu items and was performed hypothetically; no actual food purchasing decisions were made. It is possible that some studies show a benefit to calorie labeling, yet in actual decision-making scenarios, the effect is negligible due to environmental influences such as the smell of food, sight of food, cost of food purchase, and the time spent reviewing the menu prior to making a purchase. One final limitation to the current study was that it was conducted at 6:00 p.m., a time when some participants may have been hungry and others may not have been which could have had an effect on the participants' choices.

Recommendations for Future Studies

Suggested future studies should explore the cost-choice interaction of fast food decision-making in at the point of purchase. Overall mixed results in regards to college students' response to nutrition labeling indicate the need for further studies within this population. Further cross-gender studies are suggested given the mixed data regarding gender in the body of work.

An additional factor to consider in future studies is that restaurants may change some of their menu items in response to the new legislation. Aside from aiding consumers with the provision of calorie information, the purpose behind Section 4205 of the Patient Protection and Affordable Care Act is the predicted consumer and industry response as outlined in the Federal Register ("Food labeling," 2011). The predicted response is an increased awareness of caloric contents of foods by consumers, which would "help reduce the present-bias in preferences, and thus encourage the consumption of lower calorie options" (p. 19222). In turn, consumer interest in low-calorie options would increase, and restaurants would be required to be more transparent in their food offerings. Increase in consumer interest and restaurant transparency would provide an incentive to restaurants to either reduce calorie content through the reduction of portion sizes or reformulation of food, or to provide new, additional lower-calorie items. Therefore, a potential reduction in obesity due to consumer choice in response to updated food offerings would be a factor to consider

when examining the potential effectiveness of Section 4205 of the Patient Protection and Affordable Care Act in the future.

Conclusions

These findings are not the first to suggest that nutrition labeling in fast food restaurants may not have a significant effect on ordering choice. Elbel, et al. (2011) found that 57% of teens in four main fast food restaurants in New York City noticed calorie information, 9% used the information in making their food decisions, and parents ordering for children showed no significant decrease in calories chosen. Elbel, et al. (2009) found 54% of customers reported seeing the posted nutrition information in four fast-food chains in New York City, 27.7% claimed that it affected their decision, but no actual difference in calories purchased was observed. No significant difference in calories purchased was seen when compared to Newark, New Jersey, where no calories had been posted. Platkin (2009) found no results when participants viewed normal menus, menus including calorie information, and menus including calorie and exercise equivalent information.

The overall purpose of this Act as outlined by the National Prevention Council (2011) is to “Help people recognize and make healthy food and beverage choices,” with the rationale that “people are better able to make healthy decisions when provided with the information and motivation to identify and make healthy choices” (p. 35). The Act requires that restaurants provide nutrition information, but in this legislation, nothing is proposed to address the motivation needed to make healthy choices. With no significant response noted in terms of average number of calories ordered when

presented with calorie information versus not presented with calorie information, the implication is that information alone may not be sufficient to combat obesity.

College students, who often have easy access to fast food, may rely on taste and price more than nutrition when making food choices. With the collegiate population consuming fast food regularly, this information can be valuable for those responsible for nutrition policymaking. Considering such mixed data from very few research endeavors, it may be important to conduct further research on this new regulation that the United States government projects to be beneficial.

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Appendix A: Control Menu

DIRECTIONS: Please select from the following items which you would order from a food court of restaurants for a typical meal.
 You may select as many as you would order, assuming that these were the only options presented to you.
 Indicate choices by checking the boxes next to the items.

☐ Arby's® Roast Turkey, Ranch,
& Bacon Sandwich



☐ Arby's® Melt



☐ Burger King™ Whopper™



☐ McDonald's® Big Mac®



☐ Wendy's® Baconator
Double Burger



☐ Culver's® Fresh Fried
Chicken Dinner (4 pc.)



☐ Long John Silver's™ Alaskan
Pollock Sandwich



16 oz.
☐



16 oz.
☐



16 oz.
☐



16 oz.
☐



16 oz.
☐

☐ Jimmy John's™ Vegetarian
Sub



☐ Jimmy John's™
J.J. Gargantuan® Sub



☐ Taco Bell™ Fiesta
Taco Salad-Chicken



☐ Culver's® Chicken Tenders
(4 piece)



☐ Taco Bell™ Burrito
Supreme®-Beef



☐ Long John Silver's™
Baja Fish Taco



☐ Taco John's® Super Nachos



☐ KFC® Famous Bowl™-Mashed
Potato w/ Gravy



☐ KFC® Popcorn Chicken
(large)



☐ McDonald's® French Fries
(medium)



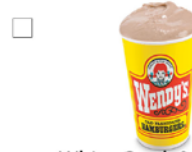
☐ Taco John's® Potato
Oles® (large)



☐ White Castle™ Mozzarella
Cheese Sticks (10 pc.)



☐ Wendy's® Chocolate
Frosty (medium)



☐ White Castle® Vanilla
Shake (large)



Appendix B: Experimental Menu

DIRECTIONS: Please select from the following items which you would order from a food court of restaurants for a typical meal.
 You may select as many as you would order, assuming that these were the only options presented to you.
 Indicate choices by checking the boxes next to the items.

☐ Arby's® Roast Turkey, Ranch, & Bacon Sandwich 810 cal



☐ Arby's® Melt 390 cal



☐ Burger King™ Whopper™ 670 cal



☐ McDonald's® Big Mac® 540 cal



☐ Wendy's® Baconator Double Burger 930 cal



☐ Culver's® Fresh Fried Chicken Dinner (4 pc.) 2220 cal



☐ Long John Silver's™ Alaskan Pollock Sandwich 470 cal



16 oz. 180 cal

☐


16 oz. 200cal

☐


16 oz. 190 cal

☐


16 oz. 0 cal

☐


16 oz. 220 cal

☐

☐ Jimmy John's™ Vegetarian Sub 578.35 cal



☐ Jimmy John's™ J.J. Gargantuan® Sub 988 cal



☐ Taco Bell™ Fiesta Taco Salad-Chicken 730 cal



☐ Culver's® Chicken Tenders (4 piece) 560 cal



☐ Taco Bell™ Burrito Supreme®-Beef 420 cal



☐ Long John Silver's™ Baja Fish Taco 360 cal



☐ Taco John's® Super Nachos 790 cal



☐ KFC® Famous Bowl™-Mashed Potato w/ Gravy 680 cal



☐ KFC® Popcorn Chicken (large) 560 cal



☐ McDonald's® French Fries (medium) 380 cal



☐ Taco John's® Potato Oles® (large) 860 cal



☐ White Castle™ Mozzarella Cheese Sticks (10 pc.) 1470 cal



☐ Wendy's® Chocolate Frosty (medium) 420 cal



☐ White Castle® Vanilla Shake (large) 990 cal



The Dietary Guidelines for Americans recommend consumption of 1,600 to 2,400 calories per day for adult women and 2,000 to 3,000 calories per day for adult men, depending on age and physical activity level.

Appendix C: Survey

Survey

1. How old are you? _____
2. What is your gender?
 - a. Male
 - b. Female
3. About how many times per month do you visit a fast food restaurant, i.e. a restaurant where food is prepared quickly after ordering, and with minimal service, for a meal or snack? _____
4. From which of the following restaurants have you consumed food in last 3 months? (Circle all that apply)
 - a. Arby's
 - b. Burger King
 - c. Culver's
 - d. Jimmy John's
 - e. KFC
 - f. Long John Silver's
 - g. McDonald's
 - h. Taco Bell
 - i. Taco John's
 - j. Wendy's
 - k. White Castle
5. How many days in a typical week do you exercise, and for how much time on an average day of exercise?

of days

amount of time per day